

PATENT COOPERATION TREATY
PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 28 NOV 2005

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| Applicant's or agent's file reference E-2535/04 | FOR FURTHER ACTION | | See Form PCT/IPEA/416 |
| International application No. PCT/B2004/004195 | International filing date (day/month/year) 15.12.2004 | Priority date (day/month/year) 19.12.2003 | |
| International Patent Classification (IPC) or national classification and IPC B60T7/06 | | | |
| Applicant FERRARI S.p.A. et al. | | | |

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| <ol style="list-style-type: none"> 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 4 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 9 sheets, as follows: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). | |
| <ol style="list-style-type: none"> 4. This report contains indications relating to the following items: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application | |

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| Date of submission of the demand 17.10.2005 | Date of completion of this report 25.11.2005 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Beckman, T Telephone No. +49 89 2399-7119 |



INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IB2004/004195

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

| | |
|------|--|
| 4-13 | as originally filed |
| 1-3 | received on 17.10.2005 with letter of 17.10.2005 |

Claims, Numbers

| | |
|------|--|
| 1-17 | received on 17.10.2005 with letter of 17.10.2005 |
|------|--|

Drawings, Sheets

| | |
|---------|---------------------|
| 1/5-5/5 | as originally filed |
|---------|---------------------|

- a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2004/004195

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|------|
| Novelty (N) | Yes: | Claims | 1-17 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | 1-17 |
| | No: | Claims | |
| Industrial applicability (IA) | Yes: | Claims | 1-17 |
| | No: | Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.
PCT/IB2004/004195

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Novelty:

None of the cited documents show all the features of independent claim 1. The claims 2-17 are all dependent, directly, or indirectly, on claim 1. Therefore, all claims 1-17 do fulfil the demands set forth in Article 33(2) PCT.

Inventive step:

The subject-matter of independent claim 1 may be regarded as solving the **problem** of providing a driving position in a vehicle with limited passenger compartment space, (desc. p.1, I.28 -p.2, I.13), with the **solution** of the subject-matter of independent claim 1: to have an adjustment (for pedals) device comprising a first guide extending in a first direction and supporting the supporting means (upper pivot point for the pedal) which are mobile along the first guide, and a control rod (brake actuator rod) parallel to the first direction, slidably engaged through the first pedal and connectable with the first pedal for actuating a brake device of the motor vehicle.

This configuration, with a control rod, slidably engaged through the first pedal and connectable with the first pedal for actuating a brake device assembly of the characterizing portion of independent claim 1 is not known from, nor rendered obvious by the prior art.

The claims 2-17 are all dependent, directly, or indirectly, on claim 1. Therefore, all claims 1-17 do fulfil the demands set forth in Article 33(3) PCT.

Industrial applicability:

The invention can be used in the automotive industry.

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AN ADJUSTABLE SET OF PEDALS FOR A MOTOR VEHICLE

TECHNICAL FIELD

The present invention relates to an adjustable set of
5 pedals for a motor vehicle.

BACKGROUND ART

Motor vehicles currently on the market are provided with
a driving position comprising a driving seat, a steering
10 wheel, a set of pedals, and a dashboard. Since the
physical characteristics of the person or persons that
will drive the motor vehicle are not known *a priori*, it
is necessary to provide a series of adjusting devices,
which enable the positions of the various components of
15 the driving position to be varied with respect to one
another so as to adapt the proportions of the driving
position to the physical characteristics of the driver.
In the majority of motor vehicles available on the
market, the set of pedals and the dashboard are arranged
20 in fixed positions, the steering wheel is generally
height-adjustable, and the seat is adjustable both as
regards the height and as regards its distance from the
steering wheel. The solution that envisages maintaining
the dashboard, set of pedals, and steering wheel
25 substantially fixed and pushing the seat forwards and
backwards is simple and inexpensive to produce and is
hence used in the vast majority of motor vehicles.
However, this solution also presents some drawbacks in

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so far as is it is impossible to provide a geometry of the dashboard that will enable its instrumentation to be properly visible in every seat position.

Furthermore, the solution just described entails the
5 construction of a driving position that is relatively extensive in length so as to obtain a sufficiently long travel of the seat. The requisite is fully acceptable in a motor vehicle with four or more seats, i.e., in a motor vehicle that is also provided with rear seats, but
10 can prove problematical in a two-seater motor vehicle, i.e., in a motor vehicle without rear seats, which has an overall length of the passenger compartment that is relatively small.

To overcome the drawbacks described above solutions have
15 been proposed in which the driving seat is fixed and the set of pedals and the steering wheel are mobile with respect to the seat so as to vary their distance from the seat.

In particular, many solutions have been proposed to
20 provide an adjustable set of pedals for a motor vehicle. However, the known solutions present various drawbacks in so far as they have a very short stroke of adjustment, are complex, and are difficult to produce.

US2860720 discloses an adjustable toeboard for an
25 automobile; the toeboard is swingably mounted and means are provided for adjusting the angular position of the toeboard to swing it toward or away from the seat.

US3151499 discloses an adjustable pedal for vehicle

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having a system for adjusting the positions of the brake and accelerator pedals to a particular operator without changing the motion transmitting relationships of the pedals to the systems being controlled by pedal actuation.

DISCLOSURE OF INVENTION

The purpose of the present invention is to provide an adjustable set of pedals for a motor vehicle that will be free from the drawbacks described above and will be simple and inexpensive to produce.

According to the present invention an adjustable set of pedals for a motor vehicle is provided as recited in the attached Claims.

15 BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described with reference to the annexed plate of drawings, which illustrate a non-limiting example of embodiment thereof, wherein:

20 Figure 1 is a schematic perspective view of a preferred embodiment of the adjustable set of pedals according to the present invention;

Figures 2 and 3 are two side views of the adjustable set of pedals of Figure 1, illustrated in two different operative positions;

25 Figure 4 is a longitudinal sectional view of a first detail of Figure 1, illustrated in two different operative positions; and

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C L A I M S

1. An adjustable set of pedals for a motor vehicle, the adjustable set of pedals comprising:
 - 5 a first pedal (8) for braking of the motor vehicle;
 - a second pedal (7) for acceleration of the motor vehicle;means for supporting (5) the first and second pedal (8, 7); and
 - 10 an adjustment device (9) for controlling selectively the position of the supporting means (5) with respect to a frame (2) of the motor vehicle and comprising a crank mechanism (16) set between the supporting means (5) and the frame (2);
 - 15 the adjustable set of pedals is characterized in that the adjustment device (9) comprises:a first guide (3) extending in a first direction (4) and supporting the supporting means (5) which are mobile along the first guide (3); and
 - 20 a control rod (14) parallel to the first direction (4), slidably engaged through the first pedal (8), and connectable with the first pedal (8) for actuating a braking device (15) of the motor vehicle.
- 25 2. The adjustable set of pedals according to Claim 1, wherein the first guide (3) comprises a first screw mounted so that it can rotate about a first longitudinal axis (3a); the supporting means (5) being coupled to the

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first screw via a first external-thread/internal-thread coupling.

3. The adjustable set of pedals according to Claim 1 or
5 Claim 2, wherein the adjustment device (9) further comprises: a second guide (24) extending in a second direction (25) substantially transverse to the first direction (4); and a slide (23), mounted so that it can slide along the second guide (24) under the action of
10 the thrust of the crank mechanism (16).

4. The adjustable set of pedals according to Claim 3,
wherein the crank mechanism (16) comprises a connecting rod (19) set between the supporting means (5) and the
15 slide (23); and a crank (17) set between the frame (2) and the connecting rod (19).

5. The adjustable set of pedals according to Claim 3 or
Claim 4, wherein the supporting means (5) are mobile
20 under the action of the thrust of the crank mechanism (16) between a first end position and a second end position; thrust means (51) are provided for displacing the supporting means (5) into, and normally maintaining them in, one of the first and second end positions.

25

6. The adjustable set of pedals according to Claim 5,
wherein the thrust means (51) are elastic thrust means set between the slide (23) and the crank mechanism (16).

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7. The adjustable set of pedals according to any one of
Claims 1 to 6, wherein the adjustment device (9) further
comprises first clamping means (26) for blocking the
supporting means (5) along the first guide (3); and a
first actuator device (29) for actuating the first
clamping means (26) between a first position of clamping
of the supporting means (5) along the first guide (3)
and a first position of release.

10

8. The adjustable set of pedals according to Claim 7,
wherein the first clamping means (26) comprise a
plurality of first clamping members (27) carried by the
supporting means (5), distributed around the first guide
(3), and mobile away from and towards the first guide
(3), and the first actuator device (29) comprises first
actuator means (31, 37) for displacing the first
clamping members (27) from the first position of
clamping to the first position of release, and second
actuator means (35) for displacing the first clamping
members (27) from the first position of release to the
first clamping position.

9. The adjustable set of pedals according to Claim 7 or
Claim 8 and further comprising second clamping means
(40) for blocking the first pedal (8) along the control
rod (14); and a second actuator device (45) to actuate
the second clamping means (40) between a second position

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of clamping of the first pedal (8) along the control rod (14) and a second position of release.

10. The adjustable set of pedals according to Claim 9,
5 wherein the second clamping means (40) comprise a plurality of second clamping members (41) carried by the first pedal (8), distributed around the control rod (14), and mobile away from and towards the control rod (14), and the second actuator device (45) comprises
10 third actuator means (46, 49) for displacing the second clamping members (41) from the second position of clamping to the second position of release, and fourth actuator means (48) for displacing the second clamping members (41) from the second position of release to the
15 second clamping position.

11. The adjustable set of pedals according to Claim 9 or
Claim 10, wherein the first pedal (8) is rotatably mounted on the supporting means (5) for oscillating about a second axis of fulcrum (11); third clamping means (52) are provided for blocking angularly the first pedal (8) about the axis of fulcrum (11), and a third actuator device (39) is designed to actuate the third clamping means (52) between a third position of clamping
20 of the first pedal (8) about the second axis of fulcrum (11) and a third position of release.
25

12. The adjustable set of pedals according to Claim 11,

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wherein the first, second, and third actuator devices (29, 45, 39) are connected together for displacing the third clamping means (52) into the corresponding clamping position, when the first and the second 5 clamping means (26, 40) are displaced into their corresponding positions of release, and into the corresponding position of release when the first and the second clamping means (26, 40) are displaced into their corresponding clamping positions.

10

13. The adjustable set of pedals according to any one of Claims 1 to 12, wherein the first direction (4) is a substantially rectilinear direction.

15

14. The adjustable set of pedals according to any one of Claims 1 to 13, wherein the first pedal (8) is coupled to the control rod (14) via a second external-thread/internal-thread coupling.

20

15. The adjustable set of pedals according to any one of Claims 1 to 14, wherein the first pedal (8) is hinged to the supporting means (5) for oscillating about a second axis of fulcrum (11), and the second pedal (7) is hinged to the supporting means (5) for oscillating, with respect to the supporting means (5), about a fourth axis 25 of fulcrum (10) parallel to the second axis of fulcrum (11).

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16. The adjustable set of pedals according to Claim 15,
wherein the first pedal (8) is hinged, moreover, in a
position corresponding to an intermediate point thereof,
to a sleeve (12) slidable along the control rod (14) for
5 oscillating, with respect to the sleeve (12), about a
fifth axis of fulcrum (13) substantially parallel to the
second axis of fulcrum (11).

17. The adjustable set of pedals according to Claim 16,
10 wherein the sleeve (12) is coupled in an axially
slidable manner to the control rod (14) to perform
rectilinear displacements along the control rod (14),
and is connectable to the control rod (14) to impart on
the control rod (14), following upon oscillation of the
15 first pedal (8) about the second axis of fulcrum (11),
rectilinear displacements so as to control selectively
operation of a braking device (15).